

Interactive comment on “A novel framework of deriving joint impoundment rules for large-scale reservoir system based on a classification-aggregation-decomposition approach” by Shaokun He et al.

Anonymous Referee #2

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The presented research, in my opinion, well fits the scope of the HESS and could be an important contribution to the management of large scale multi-objective reservoirs. In their very interesting paper, the authors presented a novel methodology that integrates the ‘classification-aggregation-decomposition’ and the Parallel Progressive Optimization Algorithm method to conquer the ‘curse of dimensionality’ problem of complex 30-reservoir impoundment operation. The idea of deriving a systematic optimization framework for an entire basin by taking into account multi-purposes all 30-reservoir is very attractive and ambitious. However, the current form of the manuscript possesses

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several shortcomings which should be revised to improve its readability and quality.

(1) It is very hard annoying to review a paper where the figures are put at the end of the manuscript. It would be easier to review the manuscript if figures are as close as possible to the place in the text (and not upside down) where they are being referenced. (2) The methodology does not well present, especially fails to emphasize the function of the PPOA method in the framework. The authors should add more detailed information about PPOA to make it clear and informative. Fig 3 could be revised to explicitly show the four main steps involved in the proposed framework. (3) The schematic diagram of the PPOA algorithm in Fig 5 should be better drawing. (4) The comparison results of three optimal operating rules with the Conventional Operating Rule, in my opinion, seem tedious (for example, Figure 7), and a long explanation of Section 4.3 is not necessary. (5) Fig. 10, “Hydropower increment of seven pools for three policies compared to the COR in different streamflow scenarios”, should be re-design and/or changed colors and make it more attractive and informative. (6) Some jargon in the reservoir community is not accessible to all audiences of HESS, ex., ‘Inflow stochasticity’ in implicit stochastic optimization (ISO), explicit stochastic optimization (ESO), and parameter simulation optimization (PSO) in the Introduction. (7) The references could be updated. (8) Proofreading by a native English speaker should be conducted to improve both language and organization quality.

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